Aliens Among Us

There is far more to Hawai'i Volcanoes National Park than what lies along the trails and roads which give most park visitors easy access to the natural and cultural resources that make this place so amazing.

In fact, I often find myself longing for one of those smooth jungle trails through an easily accessible area when I'm up to my waist in a massive volcanic crack, being consumed by ferns that, while they aren't carnivorous, can still engulf a person whole.

Dense tangles of ferns may seem like something out of a sci-fi movie, but the Inventory and Monitoring invasive plants field team encounters them on a regular basis. The main culprit, uluhe, seems like an alien (non-native) species, but it is actually a prolific native fern.

When my team and I see blankets of uluhe we know that we aren't going to encounter too many weeds; more appropriately called invasive species. Uluhe grows so thick in some areas of the park that, when undisturbed, it often prevents the establishment of invasive species in those areas. Unfortunately, much of the native forest has been disturbed by people and invasive animals. Many invasive species have become established in certain areas of the park.

Hawai'i Volcanoes NP resource management staff is in a constant battle with invasive species. In order to prioritize control efforts, park managers need to know the location and abundance of invasive plants within the park's most intact native plant communities. That's where my team enters the picture. The team consists of biological technicians, volunteers, and me, the Field Crew Leader. We travel to the far reaches of the park, including some of the most remote sections, to look for invasive plants and record the extent that they have become established.

While we utilize existing roads, trails, and fences to access the locations we need to reach, these paths usually only bring us a little closer to our required destinations. Sometimes the only way to access an area is to be dropped off by helicopter on old lava flows that parallel the edge of the forest.

It can take us 3-4 hours of climbing over tree stumps and under tree ferns just to reach the locations where we conduct our invasive plants surveys.

Since we can't measure every invasive species in the forest, we conduct sample surveys along transects (straight lines) randomly scattered throughout each plant community type. In the wet forest at Hawai'i Volcanoes NP, each transect is 1000 meters long and 5 meters wide. Every 200 meters along the transect we record a GPS point and take a set of photos. Half of the transects are flagged every 20 meters and permanently marked so that they can be resurveyed in five years. The other transects are not marked because they will never be revisited by the monitoring team.

On both permanent and temporary transects, we record all non-native plant species observed within each 20x5 meter section along the transect. We also estimate the percentage of area that each species occupies to provide park managers data on invasive species dominance within these forests.

By collecting consistent data on these surveys, we can provide useful information to National Park Service resource managers so that they can respond as necessary with effective management practices to remove, control, or contain invasive species.

Furthermore, by monitoring in the same area using the same methods every five years, we can measure changes in distribution and coverage of existing invasive species, and identify any new invaders as they arrive.

Invasive plant species present a serious threat to Pacific island ecosystems. Invasion by alien plants reduces native plant diversity and abundance, and alters plant community structure. It can also lead to significant economic and cultural costs. For example, imagine if an alien invasive grass spread like wildfire around the iconic Halema'uma'u crater in Hawai'i Volcanoes NP. The cultural and visitor experience of that sacred place would be dramatically compromised.

As the invasive plants monitoring team, it is our pleasure to go out each day in spite of volcanic cracks, mosquitoes, ferns and whatever else the forest presents us. Our ultimate goal is to promote the long-term health of the ecosystem by collecting this vital piece of the big picture for our national parks.

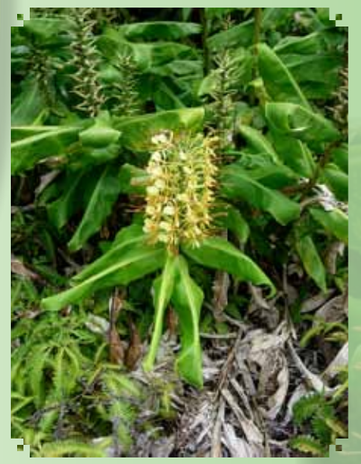
— A. Mehlhorn,
Vegetation Field Crew Leader

See the field team in action and learn more about monitoring invasive plants at:
http://www.youtube.com/user/PACN2011#p/u/6/c6j7qhdxia8

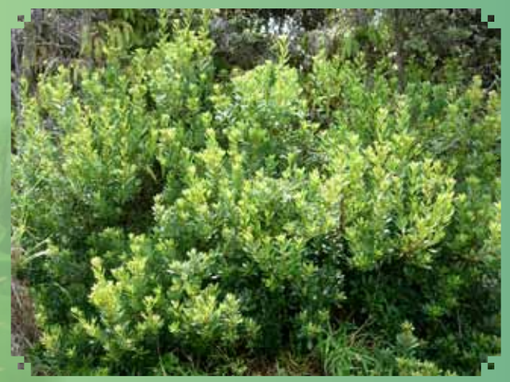
Invasive Plants Will Be Monitored in a Park Near You !

Hawai'i Volcanoes National Park – wet forest (2010-2011)
Hawai'i Volcanoes National Park – Kahuku unit (2011)
Haleakalā National Park (2012)
Kalaupapa National Historical Park (2012)
National Park of American Samoa (2013)
American Memorial Park (2014)

Cycle repeats at Hawai'i Volcanoes National Park (2015)

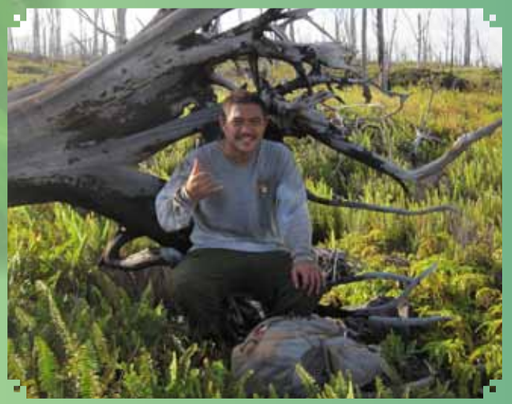


Highly invasive kāhili ginger (top) takes over habitat once dominated by the native uluhe (bottom).



While blending into the native 'ōhi'a forests, faya trees gradually change the soil chemistry which discourages new 'ōhi'a trees from the habitat, thereby changing the forest over time.

Invasive plants monitoring Biological Technician, Koa Awong, takes a breather during a survey.



Invasive plants monitoring Field Crew Leader, Adam Mehlhorn, goes over some survey notes while engulfed in a dense patch of uluhe.